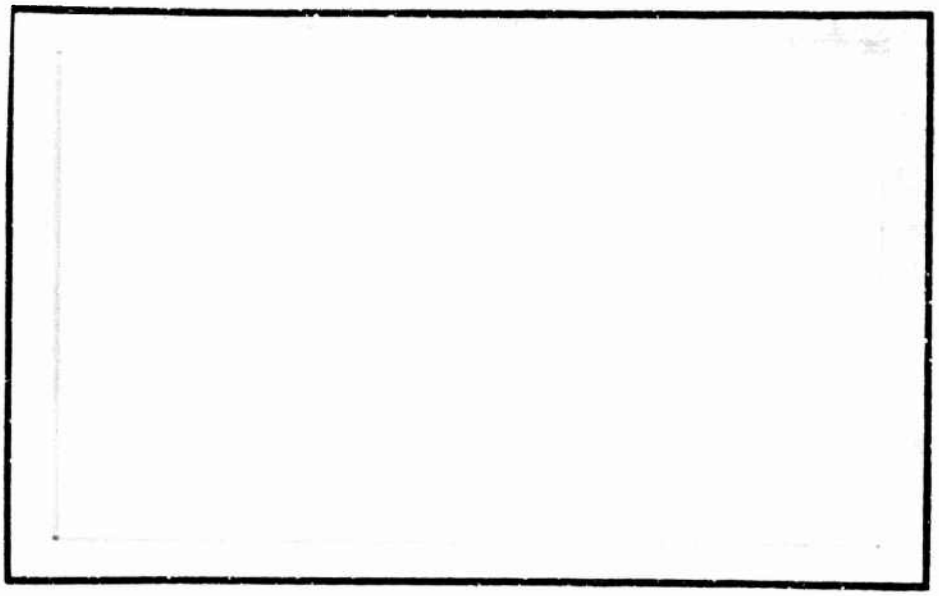

Bell Aerospace Company DIVISION OF textron

Unclassified

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DOCUMENT CONTROL DATA - R&D

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Division of Textron
P.O. Box 1, Buffalo, New York 14240

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5. AUTHOR(S) *(First name, middle initial, last name)*
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Murray A. Meldrum

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13. ABSTRACT

A triaxial accelerometer system was developed for flight on the Cannon Ball II satellite (OAR 901). This report provides the necessary operating and diagnostic instructions for this research equipment. Included are operation and calibration instructions, interconnection diagrams, logic diagrams, schematics and assembly drawings.

KEYWORDS: Accelerometer, Acceleration, Triaxial accelerometer,

DD FORM 1 NOV 65 1473

BAC 1074 Rev. 470

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CONTRACT NO. F19628-71-C-0165
(SUB LINE ITEM 0001AE)

REPORT NO. 6098-954002

R & D EQUIPMENT INFORMATION REPORT
3 AXIS ACCELEROMETER (MESA)
FOR
CANNONBALL II

June 15, 1971

CODE IDENTIFICATION 80070

W. W. Lange	6/15/71 Date		Date
[illegible]	[illegible]		

DATE	ISSUE	PAGE NO AFFECTED	AUTHORITY
			1

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I. PURPOSE OF EQUIPMENT

The triaxial accelerometer is intended to measure extremely small forces along three mutually perpendicular axes when mounted in the Cannonball II satellite. Each axis will sense in two directions, normally referred to as plus and minus accelerations. The output signal from each axis is presented in both analog and digital form.

II. THEORY OF OPERATION

The tri-axial accelerometer for the Cannonball II satellite is identified as Bell Aerospace Company (BAC) part number 6176-300001.

In order to identify each component and its interconnections, reference should be made to BAC Drawing number 6176-300001. This drawing shows that each system is made up of 5 units and 6 interconnecting cables. The parts list identifies each piece by part number and title. All BAC drawings appearing on this parts list are included in the drawing folder.

The direction of the three axes are marked on the outside of the instrument package. Motion of the case along any one of these axis will cause the output signal to appear. Since these accelerometers are scaled to measure forces in the micro-g and milli-g region, they present special problems in handling and calibration when exposed to the one -g environment existing on the earth.

The nominal full scale ranges are listed below. Along with each is the maximum angle by which the sensitive axis may be tilted from horizontal without exceeding the range.

	± Input g's	Tilt Angle
Range A	1.2×10^{-2}	41'-20"
Range B	7×10^{-4} g	2'-25"
Range C	1.6×10^{-5} g	3.3"

A glance at this list shows that even on the least sensitive scale (Range A) the sensitive axis must be horizontal to wtihin 3/4 degree in order to stay on scale.

The output of each channel is proportional to input acceleration and is available in both digital and analog form.

The analog output appears as a zero to 5 volt d-c signal. It derived from the digital signal and its magnitude is proportional to the pulse output rate representing input acceleration. The same pulse rate and d-c output represent full scale on each range.

Typical values are as shown below:

Input Full Scale	Analog Output (Volts)	Digital Output Pulses/Second
0	.15	0
20%	1.0	1000
40%	2.0	2000
60%	2.8	3000
80%	3.7	4000
100%	4.5	5000

III. BENCH TESTS

Preliminary

Interconnect the system as shown on BAC drawing No. 6176-300001. Observe that power switches on the test set are in the following positions. Test set power - OFF, DC supply to - INT., System Power - OFF. Connect the test set power cord to any 115V - 60 cycle outlet. Disable channels X and Y by disconnecting both P3 (cable W2) plugs from the interface unit. Make sure that the 3 Axis instrument package is resting on a fairly stable flat surface and is level to within ½ degree. Turn the test set power - ON, and observe the system voltage meter indicates approximately 28 volts dc, and system current is zero. Place all three meter switches on INT.

Z Channel Tests

Place Z channel meter switch in analog output position. Turn system power - ON and observe that system current meter reads about 0.2 amps. Place both cross axis and sensitive axis range T/M meter selector switches in their A positions. Depress and hold the suspension command switch for approximately ½ second. Repeat until cross axis meter indicates about 40 micro amps (4 T/M volts). Depress and hold the sensitive axis command switch for approximately 1 second. Repeat until sensitive axis command meter indicates about 40 micro amps (4 T/M volts). Observe the Z channel float position meter while very gently tilting the Z axis back and forth through horizontal. The float position meter should follow by alternately going from 0 to 50 micro amps. This indicates proper suspension of the proof mass in the accelerometer. Rest the three axis package flat on the table and observe if analog output is less than 50 micro amps. If not, tilt

Z axis and shim appropriate end to give an on scale reading. Very slight adjustments in the tilt should now cause the analog output to vary between 0 and 5VDC. Tilting the base to reduce the analog output will cause the float position meter to go to approximately 25 micro amps (2.5 T/M volts) when the analog output is minimum. This is the null or zero g input condition. As long as the analog output is less than 50 micro amps, the float position meter will indicate a fairly steady value of either 10 or 40 micro amps depending on the polarity of the input g's.

Switch the meter selector switch to ELECT. TEMP and note the reading. At room temperature this should indicate approximately 20 micro amps. (2 T/M volts). Switch the meter selector to ACCEL-TEMP. The reading should again be approximately 20 micro amps.

Overrange Circuit Test

Place the sensitive axis command meter in position B and depress the range command observing that meter reads about 40 micro amps. Tilt the sensitive axis to cause the analog output to saturate at 50 micro amps; this activates the overrange circuit. The analog output should now drop to near zero for about 20 seconds, then return momentarily (2 seconds) to 50 micro amps, and then back to near zero. Switch the command meter selector switch back to A and depress the sensitive axis command two times. The meter should again read 40 micro amps and the analog output should be near zero. This completes bench test of the Z channel. Turn system power - OFF and proceed to the Y channel tests.

Y Channel Tests

Connect P3 (cable W2) to J3, channel Y, on the signal conditioner. Place Y channel meter switch in analog output position. Turn system power ON and observe that system current increases to about 0.4 amps. Note that both Sensitive Axis and Cross Axis command meters indicate about 40 micro amps corresponding to Range A. Observe the Y channel float position meter while gently tilting the Y axis back and forth through horizontal. The float position meter should follow by alternately going from 0 to 50 micro amps, indicating suspension of the Y accelerometer. Rest the three axis package flat on the table and observe if analog output is less than 50 micro amps. If not, tilt and shim appropriate mounting lug to obtain an on scale reading. The indications of float position and analog output should be the same as described for the Z channel. Check the Elect. and Accel. Temp readings by means of the selector switch. The readings should be approximately 20 micro amps at room temperature.

Overrange Circuit Test

Place the sensitive axis command meter in position B and depress the range command observing that meter reads about 40 micro amps. Tilt the sensitive axis to cause the analog output to saturate at 50 micro amps; this activates the overrange circuit. The analog output should now drop to near zero for about 20 seconds, then return momentarily (2 seconds) to 50 micro amps, and then back to near zero. Switch the command meter selector switch back to A and depress the sensitive axis command two times. The meter should again read 40 micro amps and the analog output should be near zero. This completes bench test of the Y channel. Turn system power - OFF and proceed to check the X channel.

X Channel Tests

Connect P3 (cable W2) to J3 channel X on the signal conditioner. Place X channel meter switch in the analog output position. Turn system power - ON and observe that system current increases to about 0.6 amps. Note that both command indicators read about 40 micro amps corresponding to Range A. Observe the X channel float position meter while gently tilting the X axis back and forth through horizontal. Note that the 3 axis mount must be turned on its side in order to get the X axis horizontal. Continue tests on X channel as described for Y channel above. This completes the X channel tests. Turn system power - OFF and place the three axis package on its three mounting pads.

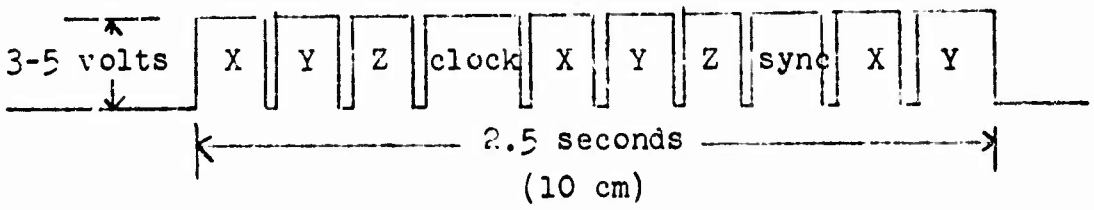
Command Tests

Turn system power - ON and observe that both command meters indicate about 40 micro amps (4 T/M volts = Range A). Depress the suspension command, hold for 1 second and release. The cross axis meter should go to about 2 micro amps (0 T/M volts). Switch the cross axis meter selector switch to B; meter should again read 40 micro amps. Depress sensitive axis command, hold for 1 second and release. The sensitive axis meter should go to about 2 micro amps (0 T/M volts). Switch sensitive axis meter selector switch to B; meter should again read 40 micro amps. Turn system power switch - OFF. Leave off for about 5 seconds. Turn system power - ON and note that both command meters read about 40 micro amps. Depress each switch, hold for 1 second and release. Switch both meter selectors to C range. Both meters should indicate about 40 micro amps. Turn system power - OFF for 5 seconds and then ON again. Command meters should again read about 40 micro amps. Depress each command switch, hold for 1 second and release. Both command meters should indicate about 20 micro amps (0 T/M volts). Switch both meter selectors to the A range. Both

should indicate 40 micro amps. This completes the command tests

Digital Signal Conditioner Tests

Connect an oscilloscope to either the bnc connector or the binding posts labeled "digital output." Set the scope time base to about 250 msec/cm (assuming a 10 cm viewing area). Sync the scope sweep generator and observe the presence of the channel words, sync word, and clock word as shown below. Note that the amplitude of the output pulse train is +4 ±1 volt.



IV. INSTALLATION TESTS

Install each of the five units which make up the system in their respective places in the satellite. Connect cables W1, and W2. Make sure that all units of a particular channel are mated to the connectors with that channel marking. Connect test cable to J5 on the interface unit. Temporarily disconnect P3 channels Y and Z. Connect the test set to 115V - 60 cycle power. Turn test set power - ON. Voltage should be 28V. Turn all meter switches to INT., and all meter selector switches to analog output. Turn system power - ON and check each channel using the same procedure as described in the bench tests. In this case, however, it will be necessary to have the satellite mounted in a manner that will enable each of the three axis to be tilted through horizontal and held there to within ±½ degree. Perform the Command and

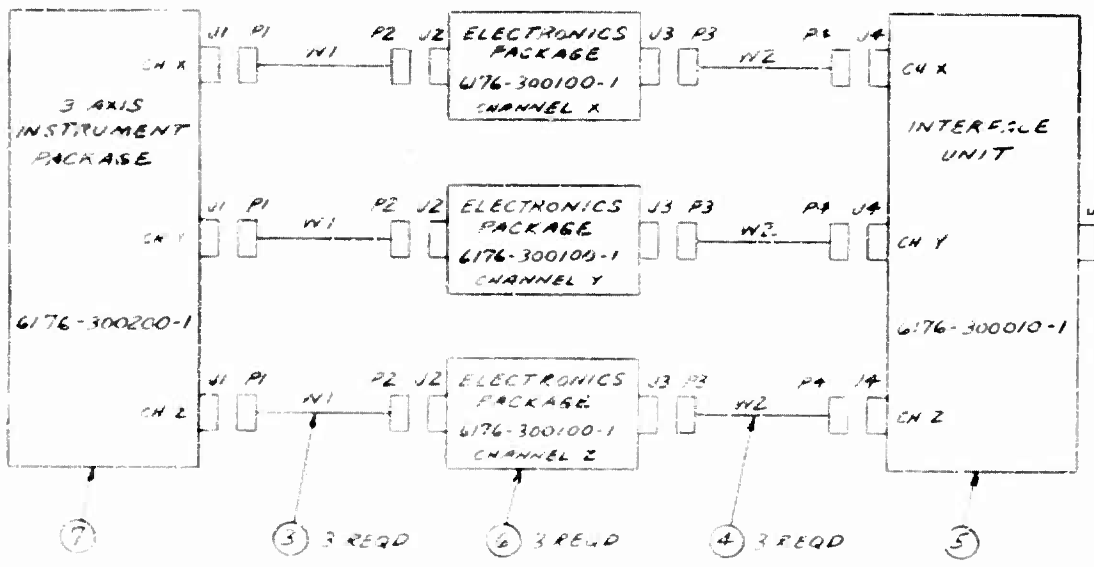
Digital Signal Conditioner Tests as described in the Bench tests. Turn system power - OFF. Turn Test Set power - OFF. Remove Test Set Cable and disconnect power cord to test set. This completes installation tests. The system may now be connected to the various satellite systems by way of J5 on the signal conditioner.

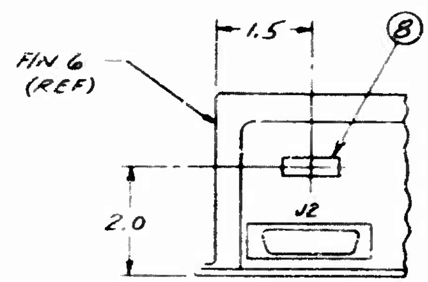
V. SATELLITE TESTS

Connect the system to the satellite power, telemetry, and command systems by means of J5 on the signal conditioner. Apply power to the system and command both Sensitive and Cross Axis into Range A. Again the satellite must be horizontal to within ½ degree. Perform the check of each channel as described in the bench tests. Perform the Command and Digital Signal Conditioner tests also as described in the bench tests. This time the voltages will have to be read at the output of the telemetry. This completes the satellite tests.

VI. CHANNEL REPLACEMENT

In the event a channel becomes defective either due to a faulty accelerometer or electronics, both units must be replaced. Remove the three axis instrument package, the defective channel electronics, and the interface unit from the satellite. All three packages, plus the associated W1 and W2 cables should be returned to the manufacturer (Bell Aerospace Company) for repair.





NOTES:

1. MARK CHANNEL (X, Y OR Z) AT TIME OF SYSTEM TEST. EXAMPLE CH X
2. TEST PER TEST PROCEDURE 6176-928001

QTY REQD	FIND NO	CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	DRAWING OR SPECIFICATION	MATERIAL OR NOTE
AR	8	11224	3/8" SOLID BLACK EMBOSSING TAPE			
1	7		6176-300200-1	3 AXIS INSTRUMENT PKG		
3	6		100-1	ELECTRONICS PKG		
1	5		010-1	INTERFACE UNIT		
3	4		006-1	CABLE W2		
3	3		005-1	CABLE W1		
REF	2		002-1	INTER CABLE DIAGRAM		
	1		6176-300001-1	SYSTEM		
-1						

PARTS LIST

NUMBER	APPLICATION	DASH NO	NEXT ASSY	USED ON
6176-928001	TEST PROCEDURE	-1	FINAL	CRL (CBII)

APPLICABLE SPECIFICATIONS — APPLICATION — QTY REQD

HOLE TOLERANCES EXCEPT AS SHOWN

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON DECIMALS .X ±.1, .XX ±.03, .XXX ±.010, ANGLES ±0° 30'

UNLESS OTHERWISE SPECIFIED: BREAK EDGES .015 MAX RAD OR CHAMFER; DIMENSIONING IS PER USAS Y14.5; MACHINED SURFACES

DWN HAHLAND 2 JAN 70
GR
APVD
WT
CHK
STRESS
RLSE
CONTR

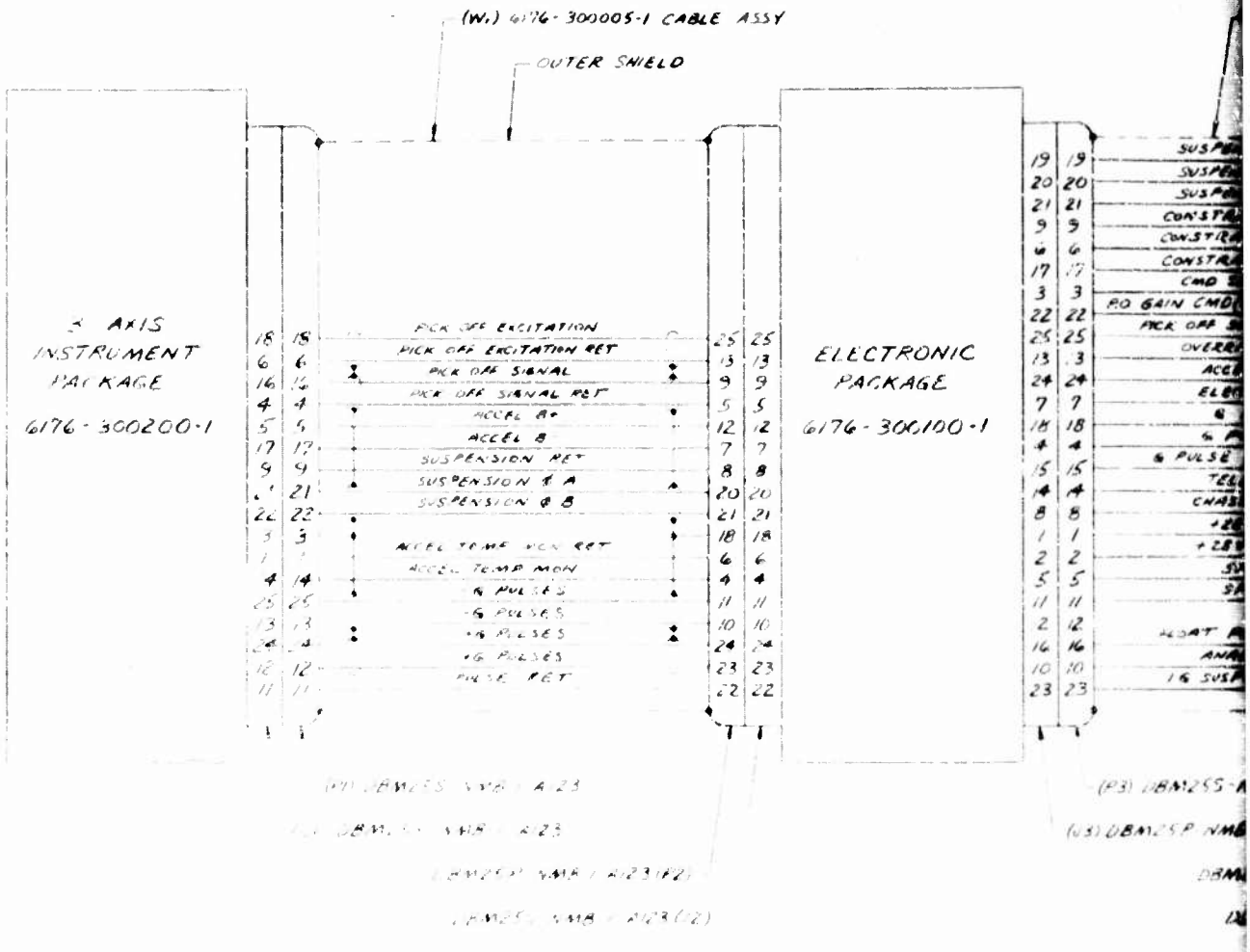
BELL AEROSYSTEMS COMPANY
POST OFFICE BOX ONE, BUFFALO, NEW YORK 14240
DIVISION OF BELL AEROSPACE CORPORATION – A TEXTRON COMPANY

THREE AXIS MINIATURE ELECTROSTATIC ACCELEROMETER (MESA) SYSTEM

SIZE C | CODE IDENT NO 80070 | DRAWING NO 6176-300001

SCALE NONE | 1 SHEET

6176-300001



(P1) DBM25S VMB - A23

(P2) DBM25S VMB - A23

(P2) DBM25P VMB - A23(P2)

(P2) DBM25S VMB - A23(P2)

(P3) DBM25S-A

(J3) DBM25P VMB

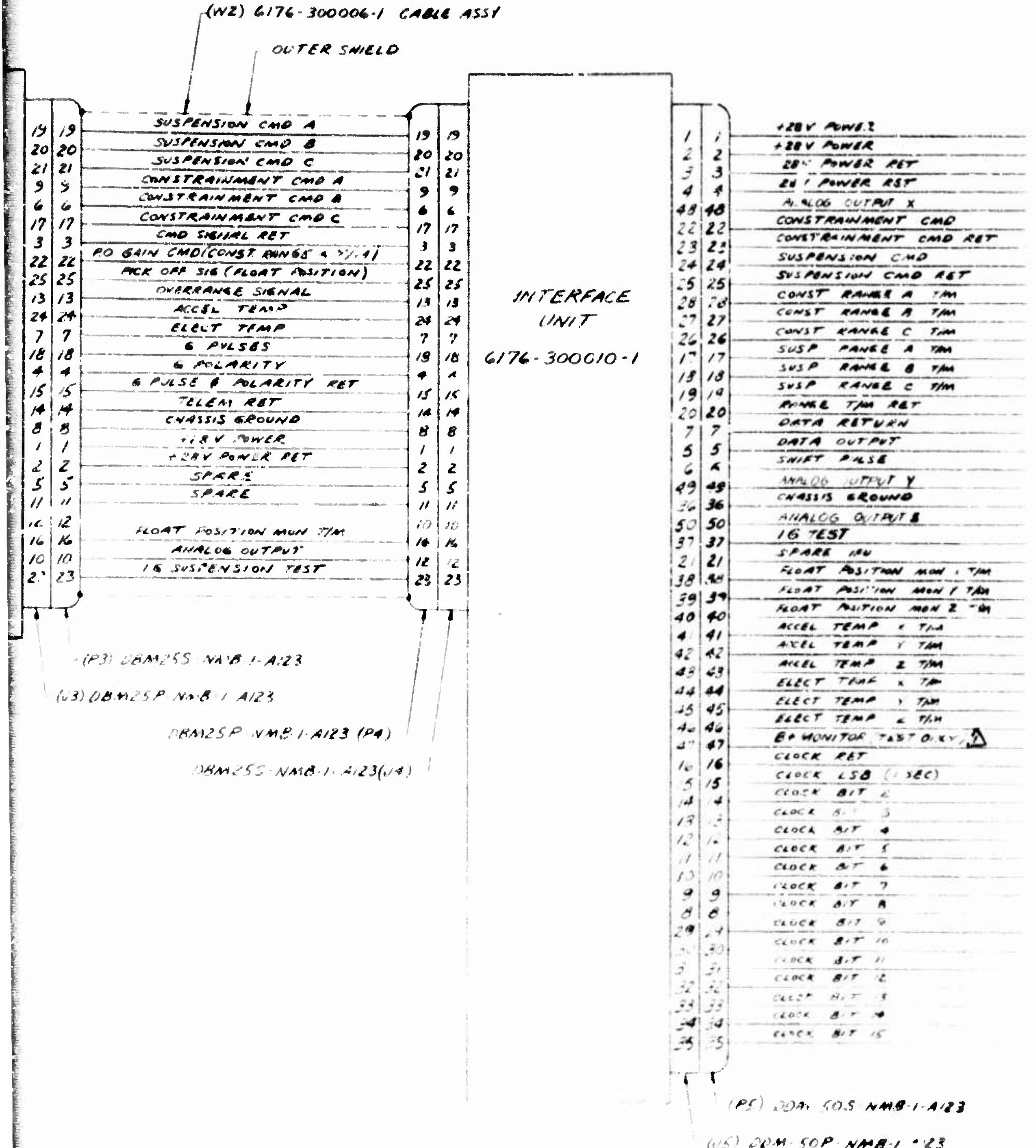
DBM

(J3

⚠ NOT USED IN SATELLITE CABLE

NOTES

ZONE	LTR	DESCRIPTION	DATE	APPROVED
	A	ADDED ANALOG OUTPUT X Y & Z AT P5 PIN 48,49,50; ... CANCELED ...	26 Jun 1970	[illegible]



(W2) 6176-300006-1 CABLE ASSY
OUTER SHIELD
SUSPENSION CMD A
SUSPENSION CMD B
SUSPENSION CMD C
CONSTRAINMENT CMD A
CONSTRAINMENT CMD B
CONSTRAINMENT CMD C
CMD SIGNAL RET
PO GAIN CMD/CONST RANGES & S/L A
PICK OFF SIG (FLOAT POSITION)
OVERRANGE SIGNAL
ACCEL TEMP
ELECT TEMP
6 PULSES
6 POLARITY
6 PULSE & POLARITY RET
TELEM RET
CHASSIS GROUND
+28V POWER
+28V POWER RET
SPARE
SPARE
FLOAT POSITION MON T/M
ANALOG OUTPUT
16 SUSPENSION TEST
(P3) DBM25S-NMB-1-A123
(J3) DBM25P-NMB-1-A123
DBM25P-NMB-1-A123 (P4)
DBM25S-NMB-1-A123 (J4)
INTERFACE UNIT
6176-300010-1
+28V POWER
+28V POWER
28V POWER RET
28V POWER RET
ANALOG OUTPUT X
CONSTRAINMENT CMD
CONSTRAINMENT CMD RET
SUSPENSION CMD
SUSPENSION CMD RET
CONST RANGE A T/M
CONST RANGE B T/M
CONST RANGE C T/M
SUSP RANGE A T/M
SUSP RANGE B T/M
SUSP RANGE C T/M
RANGE T/M RET
DATA RETURN
DATA OUTPUT
SHIFT PULSE
ANALOG OUTPUT Y
CHASSIS GROUND
ANALOG OUTPUT Z
16 TEST
SPARE
FLOAT POSITION MON T/M
FLOAT POSITION MON 1 T/M
FLOAT POSITION MON 2 T/M
ACCEL TEMP X T/M
ACCEL TEMP Y T/M
ACCEL TEMP Z T/M
ELECT TEMP X T/M
ELECT TEMP Y T/M
ELECT TEMP Z T/M
B+ MONITOR TEST ONLY
CLOCK RET
CLOCK LSB (1 SEC)
CLOCK BIT 2
CLOCK BIT 3
CLOCK BIT 4
CLOCK BIT 5
CLOCK BIT 6
CLOCK BIT 7
CLOCK BIT 8
CLOCK BIT 9
CLOCK BIT 10
CLOCK BIT 11
CLOCK BIT 12
CLOCK BIT 13
CLOCK BIT 14
CLOCK BIT 15
(P5) DDM-50S-NMB-1-A123
(J5) DDM-50P-NMB-1-A123

PARTS LIST

QTY REQD	FIND NO	CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	COMMERCIAL DESIGNATION	SPECIFICATION

NEXT ASSY	USED ON	QTY REQD
6176-300001 CBL (CBII)		

DESIGN [illegible] 23 JAN 70
CHECK [illegible]

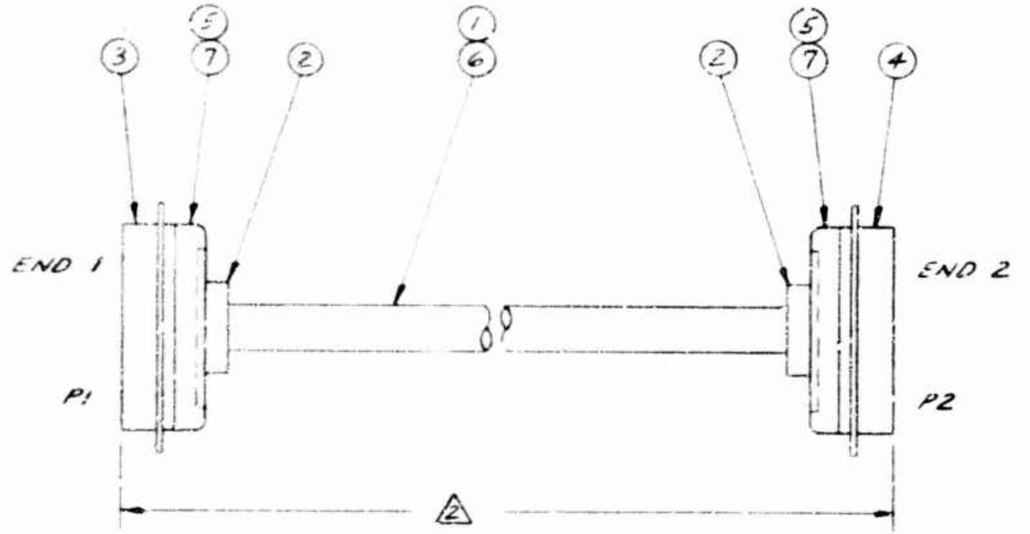
BELL AEROSYSTEMS COMPANY
A TEXTRON COMPANY
POST OFFICE BOX ONE BUFFALO, NEW YORK 14240

INTERCONNECTING CABLE DIAGRAM - 3 AXIS MESA SYSTEM (CB II)

SIZE F | CODE IDENT NO. 80070 | 6176-300002

6176-300002

ZONE	LTR	REVISIONS DESCRIPTION	DATE	APPROVED



QTY REQD	FIND NO	SPEC IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	DRAWING OR SPECIFICATION	MATERIAL OR NOTE
REF	12		6176-300008	WIRE LIST		
AR	11	81348	SN60-WR-P2	SOLDER	QQ-S-571	60/40
AR	10	05689	61-26-00	WIRE		
AR	9	05689	6E-24-09	WIRE		
AR	8	95689	2C-6E-24-09-09	STJ-14 WIRE		
AR	7	94552	2741-STYCAST	POTTING COMPOSITION		
AR	6	92194	2173	TUBULAR BRAIDING		
2	5	71468	AB15678-A(AMG)	POTTING SHELL		
1	4	71468	[illegible]	CONNECTOR		
1	3	71468	[illegible]	CONNECTOR		
2	2		6098-300453-1	POTTING FORM		
	1		6176-300005-1	INTERCONNECTING CABLE		
-1						

PARTS LIST

NOTES:

1 FABRICATION IN ACCORDANCE WITH 6098-300189

2 LENGTH TO BE DETERMINED AT FIRST INSTALLATION

NUMBER	APPLICATION	DASH NO	NEXT ASSY	USED ON	QTY REQD
6098-300189	CABLE FAB	-1	6176-300001	CRL (CBE)	3

APPLICABLE SPECIFICATIONS / APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON DECIMALS: .X ±.1, .XX ±.06, .XXX ±.010, ANGLES: ±0° 15'

DWN HALLAND 14 JAN 70
CHK 1-16-70

BELL AEROSYSTEMS COMPANY

INTERCONNECTING CABLE-
ELEC/3 AXIS MOUNT
W1

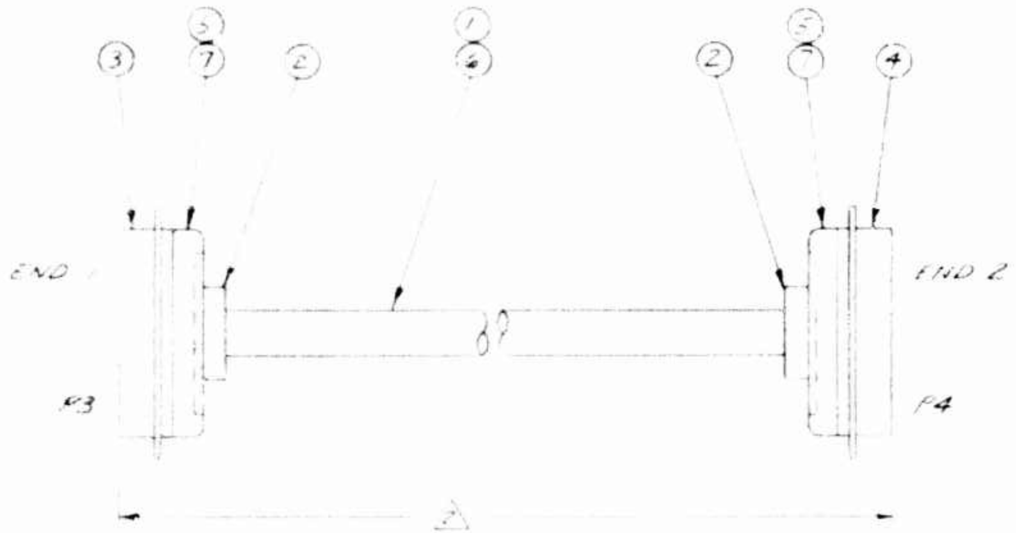
SIZE C | CODE IDENT NO 80070 | DRAWING NO 6176-300005

SCALE NONE | SHEET

6176-300005

12

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	A	(1) CHANGED NOTE 3 WAS 3. RUN 25 WIRES BETWEEN P3 & P4 (PIN TO PIN)	SEPT 4, 70	[illegible]



Reproduced from best available copy.

3. RUN 24 WIRES BETWEEN P3 & P4 EXCEPT CONNECT P3 PIN 10 WITH P4 PIN 12 AND OMITTING ANY LEAD BETWEEN P3 PIN 12 & P4 PIN 10 (A1)

2. LENGTH TO BE DETERMINED AT FIRST INSTALLATION

1. FABRICATION IN ACCORDANCE WITH 6098-300189

NOTES

QTY REQD	FIND NO	CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	DRAWING OR SPECIFICATION	MATERIAL OR NOTE	DIA	THK	WD	LG	TS 1000 PSI	ZONE
AR	9	81348	SN60 WR P2	SOLDER	QQ-S-571	60/40						
AR	8	05689	6E 24 09	WIRE								
AR	7	[illegible]	2741-STYCAST	POTTING COMPOSITION								
AR	6	[illegible]	2173	TUBULAR BRAIDING								
2	5	71468	DB19678-1 (A106)	POTTING SHELL								
1	4	71468	DBM-25P-NMB-A123	CONNECTOR								
1	3	71468	DBM-25S-NMB-A123	CONNECTOR								
2	2		6098-300153-1	POTTING FOR #1								
	1		6176-300006-1	INTERCONNECTING CABLE								
-1												

PARTS LIST

REV STATUS OF SHEETS | REV | SHEET

6098-300189	CABLE FAB	-1	6176-300001	CPL (C8II)	3	
NUMBER	APPLICATION	DASH NO	NEXT ASSY	USED ON	NEXT ASSY	FINAL ASSY
APPLICABLE SPECIFICATIONS			APPLICATION		QTY REQD	

HOLE TOLERANCES EXCEPT AS SHOWN		
.013 TO .039	+.004	-.001
.040 TO .129	+.005	-.001
.130 TO .250	+.006	-.001
.251 TO .485	+.008	-.001
.486 TO .735	+.010	-.001
.736 TO .985	+.012	-.001
.986 AND LARGER	±.010	
SO TO COMPLETE PRINT		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS

.X	.XX	.XXX	ANGLES
[illegible]	±.03	±.010	±0° 30'

UNLESS OTHERWISE SPECIFIED BREAK EDGES .015 MAX RAD OR CHAMFER. DIMENSIONING IS PER USAS Y14.5. MACHINED SURFACES

DWN	H AILAND 14 JAN 70
GR	[illegible] JAN 70
APVD	[illegible]
WT	
CHK	[illegible]
STRESS	
RLSE	[illegible]
CONTR	

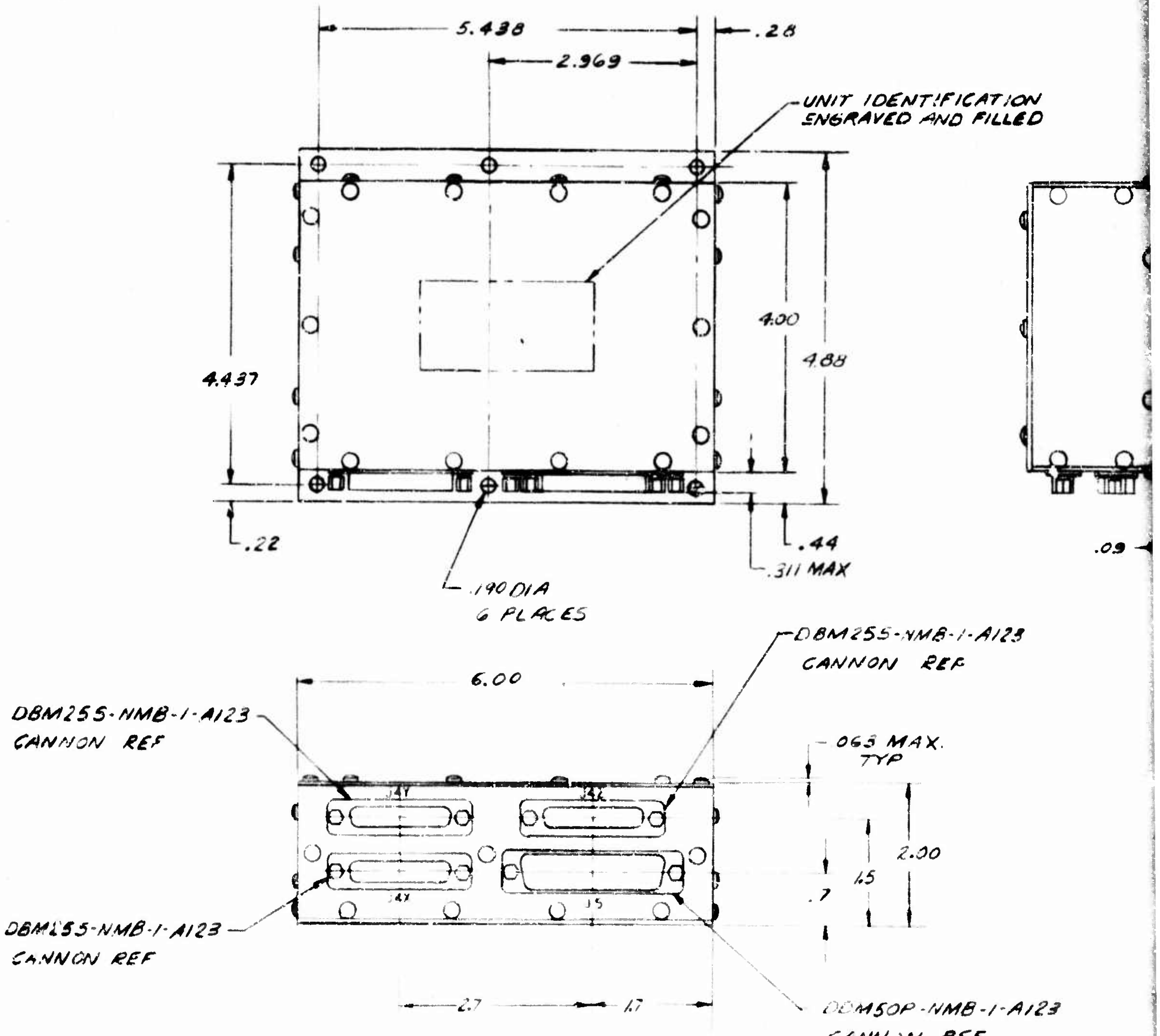
BELL AEROSYSTEMS COMPANY
POST OFFICE BOX ONE BUFFALO, NEW YORK 14240
DIVISION OF BELL AEROSPACE CORPORATION – A TEXTRON COMPANY

INTERCONNECTING CABLE - ELEC / INTERFACE W2

SIZE	CODE IDENT NO	DRAWING NO
C	80070	6176-300006

SCALE NONE | SHEET

6176-300006



4 PROTECTIVE FINISH IRIDITE YELLOW PER MIL C 5541, TYPE I, GRADE C, CLASS 3

3 TOLERANCES .XX-±.020
.XXX-±.005

2 SEE SPECIFICATION 6176-947010 FOR REQUIREMENTS

1 PURCHASE FROM ADCOLE CORP, 330 BEAR HILL RD WALTHAM, MASS. CODE IDENT. 18150 THEIR PART NO 15294

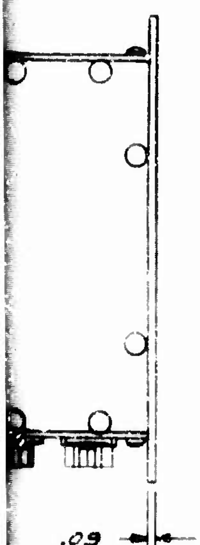
NOTES

NUMBER	APPLICATION
MIL-C-5541	PROT FINISH
6176-947010	DESIGN SPEC

EO NO. | EO TO COMPLETE PRINT | APPLICABLE SPECIFICATIONS

14

REVISIONS	
LTR	DESCRIPTION
A	REDRAWN WITH [illegible] ADDED [illegible] GEN. NOTES



QTY REQD	FIND NO.	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	COMMERCIAL DESIGNATION	SPECIFICATION
			6176-300010-1	INTERFACE UNIT	1 2		

PARTS LIST

NEXT ASSY	USED ON	NEXT ASSY	FINAL ASSY
6176-3[illegible]	CRL CBII	1	

APPLICATION — QTY REQD

HOLE TOLERANCES EXCEPT AS SHOWN

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON DECIMALS ANGLES: ± 0°30'

UNLESS OTHERWISE SPECIFIED BREAK ALL SHARP EDGES APPROX .015 R OR CHAMFER

MACHINED SURFACES EXCEPT AS NOTED ✓

SUPERSEDES 6176-300010 W LANE 6-22-69

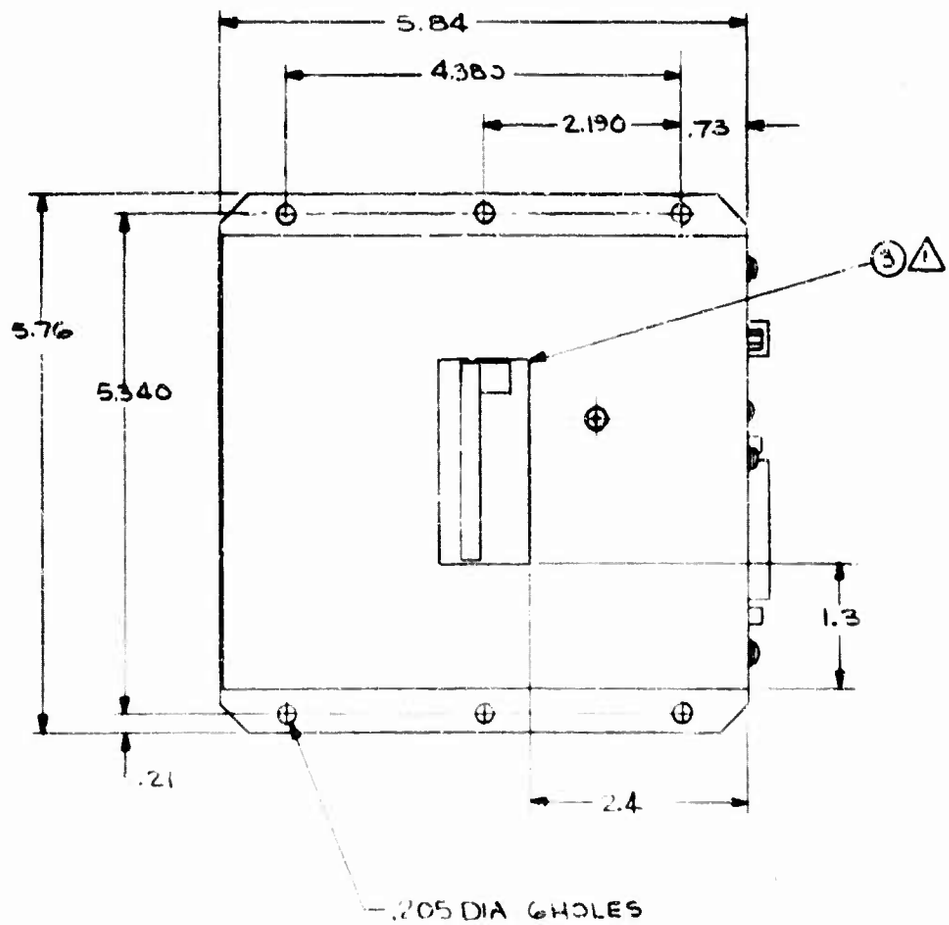
SUPERSEDED BY

DESIGN [illegible]
GROUP [illegible]
APPD [illegible]
WT
CHECK [illegible]
STRESS
REL [illegible] 6-26-69
CONTRACT NO.

INTERFACE UNIT CB II

SIZE D — CODE IDENT NO. 80070 — 6176-300010

SCALE [illegible] — SHEET [illegible]

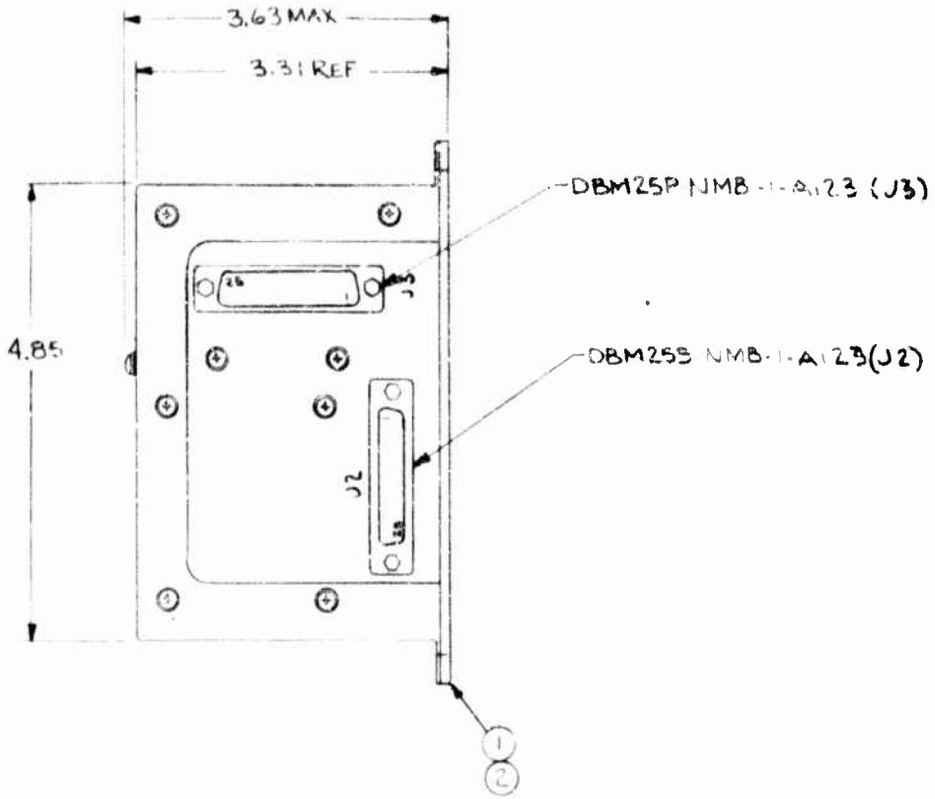


⚠ APPLY PER BPS4168

NOTES: 15

			BPS 4168	TOOLING DATA & INSTALLATION	-1
ED NO.	SH OF SH		NUMBER	APPLICATION	
ED TP COMPLETE POINT			APPLICABLE SPECIFICATIONS		

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED



QTY REQD	FIND NO	CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	COMMERCIAL DESIGNATION	SPECIFICATION
	3		6176 300106-1	NAMEPLATE			
	2		6176 300101-1	ELECTRONICS PACKAGE			
	1		6176 300100-1	OUTLINE			

PARTS LIST

HOLE TOLERANCES EXCEPT AS SHOWN
.040 TO .129 ± .005 .000
.130 TO .250 ± .004 .000
.251 TO .484 ± .004 .000
.485 TO .735 ± .010 .000
.736 TO .985 ± .015 .000
.986 AND LARGER ± .020

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS

X	XX	XXX	ANGLES
± 1	± .03	± .010	± 0°30'

UNLESS OTHERWISE SPECIFIED BREAK ALL SHARP EDGES APPROX .015 R OR CHAMFER

MACHINED SURFACES EXCEPT AS NOTED ✓

SUPERSEDES | SUPERSEDED BY

DESIGN
GROUP
APPD
EXT
CHKR
STRESS
REL
CONTRACT NO

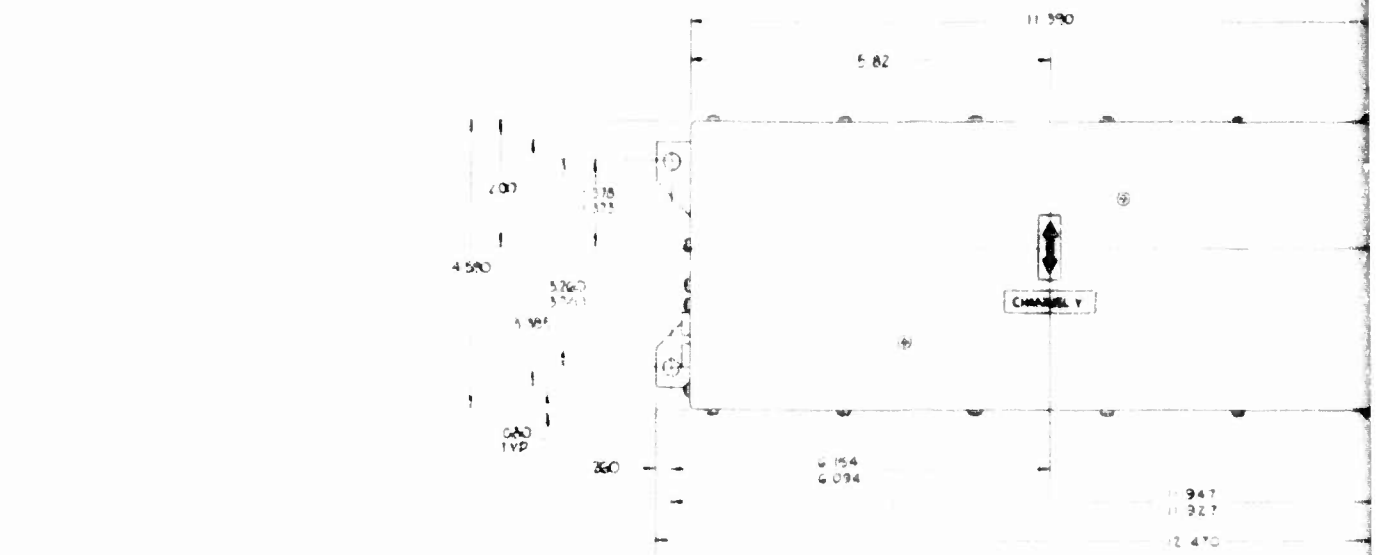
BELL AEROSYSTEMS

OUTLINE-ELECTRONICS PACKAGE, CRL II MESA

SIZE	CODE IDENT NO.	
D	80070	6176-300100

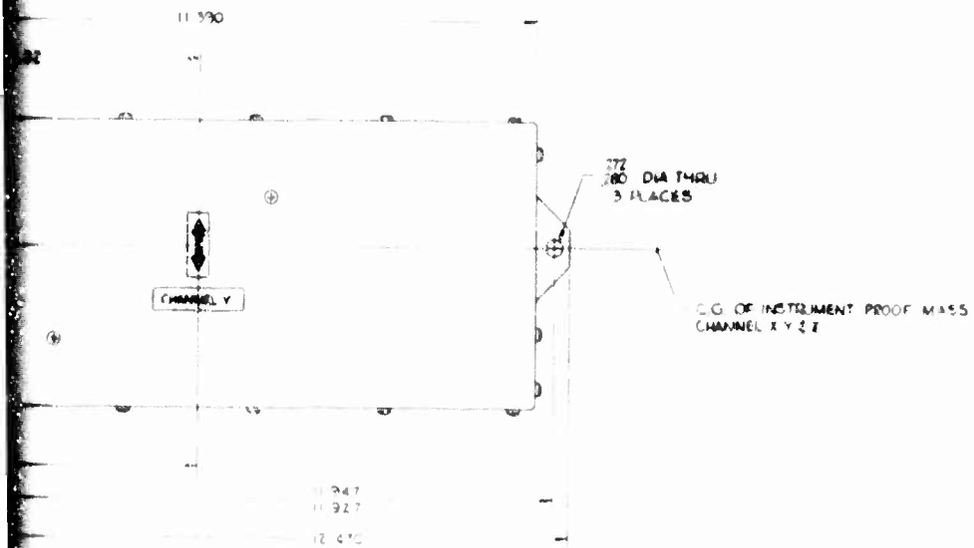
SCALE 1/1 SHEET 1 of 2

NEXT ASSY	USED ON	NEXT ASSY	FINAL ASSY
6176 300000	CRL II	1	
DASH NO	APPLICATION	QTY REQD	
1			



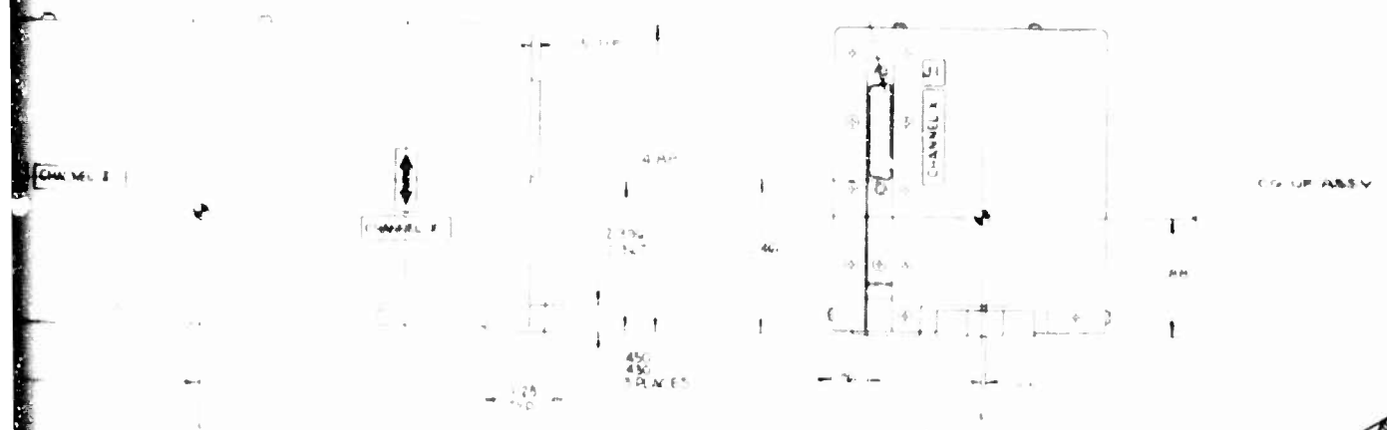
NOTES

1. DIMENSIONS SHOWN DEFINE MAXIMUM OUTLINE OF UNIT, UNLESS OTHERWISE SPECIFIED



C.G. OF INSTRUMENT PROOF MASS
CHANNEL Y

C.G. OF INSTRUMENT PROOF MASS
CHANNEL Y



PARTS LIST

OUTLINE DRAWING,
3 AXIS ACCELEROMETER -
MESA II

169

6172 -300200